



# Attitudes of demographic item non-respondents in employee surveys

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## Abstract

**Purpose** – The purpose of this research is to investigate whether the participants in an employee survey who do not answer one or more demographic items differ systematically from those who fill out all demographic items.

**Design/methodology/approach** – Logistic regression, with affective commitment, job satisfaction, and attitude towards leadership as predictors of responding to demographic items is used to analyze the data of an employee survey in a German company.

**Findings** – Survey participants with low commitment, poor job satisfaction, and negative attitudes towards leadership are more likely not to provide demographic information, while highly committed participants tend to answer all demographic items. Non-respondents are also more concerned that their skills become obsolete, and they feel that employees do not have enough say.

**Research limitations/implications** – The paper does not distinguish among demographic item non-respondents on the basis of how many and which items are omitted. Future research should take a closer look at the different sensitivity of the demographic items.

**Practical implications** – Managers should be aware that it is likely that the results of an employee survey for their organizational subunits tend to be biased and show a picture that is too optimistic as compared to company-wide results.

**Originality/value** – The value of the paper lies in demonstrating a systematic and practically important bias in employee survey statistics that has been overlooked so far.

**Keywords** Employees, Demographics, Job satisfaction, Surveys, Germany

**Paper type** Research paper

## Introduction

Employee surveys are the most widely used tools of Human Resources research and organizational development today (Borg, 2003; Kraut, 2006). Their effectiveness depends, however, on their ability to yield unbiased focused feedback on the employees' attitudes and opinions. What is needed is reliable information on how the employees of different organizational units and, in particular, individual workgroups view the conditions of their working environment, not just company-wide statistics on the average employee. Yet, data drill-downs to such organizational subgroups depend on the availability of demographic information that allows identifying specific groups of respondents. Such information is typically gathered in a separate section of the questionnaire which contains demographic items that ask the respondents to identify the workgroup they belong to, their tenure level, their position in the hierarchy of the organization (from non-manager to executive manager), gender, and so on. In order to keep concerns about anonymity at the lowest level possible, the number of such items



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is typically limited to those that are “truly needed” (Roll, 2006). Often, the respondents are only asked to name their workgroup and their position (Borg, 2003).

If employees fail to answer these demographic items, their responses cannot be related to their individual workgroups or to any other subgroups to which they belong. Not filling out demographic items is a particular form of survey non-response behavior. Hence, reasons that were found for unit non-response (i.e. not participating in the survey at all) may also explain non-response to demographic items. Additional reasons are simple errors such as overlooking the page in the questionnaire that contains the demographic items, quitting the survey before having completed the whole questionnaire, or assuming that the information targeted by a particular item is not important.

If one asks unit non-respondents about their reasons for not participating in a survey, one typically finds two types of arguments (Newell *et al.*, 2004; Rogelberg and Luong, 1998; Rogelberg *et al.*, 2000; Rogelberg and Stanton, 2007). The first type applies to passive non-respondents. Their non-participation is caused by technical problems (e.g., did not receive questionnaire, illness, mislaid questionnaire), by lack of time, by being new to the organization, by forgetting to fill out the questionnaire, etc., (i.e. by reasons unrelated to the content of the survey items). The second type is motivated differently. The respondents of this type decide consciously not to participate. Many reasons can account for that. E.g., the respondents may not be interested in the survey’s content; or they do not expect that the survey has any utility; or they may be concerned that the survey is not truly anonymous or confidential. It may even be true at times, as Thompson and Surface (2007, p. 252) report, that unit non-response is motivated by being “satisfied with the way things are; therefore did not see need to respond”. The distinction between passive and active non-respondents, in any case, is crucial: Research shows that persons who answer a survey questionnaire do not differ from passive unit non-respondents in their attitudes and opinions, but they both differ from active unit non-respondents on some issues assessed by the survey. In an employee survey, active unit non-respondents can be expected to be relatively dissatisfied with the organization, for example (Rogelberg *et al.*, 2003; Spitzmueller, 2006). Thus, the statistics of the survey will be biased in the sense that some issues such as the respondents’ attitudes towards the organization will come out too positive.

The same basic distinction of passive and active unit non-respondents can also be applied to the case of demographic item non-response, although the reasons for the latter can be quite different from those for unit non-response. Some of these differences can be derived from what Rogelberg and Stanton (2007, p. 9) state, i.e. that “potential respondents may... perceive greater risk associated with completing an organizational survey as opposed to a polling or consumer survey (e.g., possible repercussions)”. If respondents feel, for example, that their data are not protected and that management will not use them constructively, not filling out the demographic items is a well-founded “decision to withhold information” (Beatty and Herrmann, 2002, p. 76) that reduces the risk of negative consequences.

Outside the employee survey literature, perceptions of survey anonymity have been found to predict survey non-response (Bjarnason and Adalbjarnardottir, 2000; O’Malley *et al.*, 2000). In employee surveys, anonymity concerns are always a major issue raised by the employees and by special stakeholders such as works councils, data protection officers, or legal departments (Barbera *et al.*, 2007). After all, combining a

number of different demographic variables allows the data analyst to profile a respondent, and this profile may be specific enough for a manager to identify an individual respondent or at least narrow down the group of respondents to just a few suspects. Knowing, for example, that the respondent is female, that she has been working for the company for less than two years, and that she belongs to workgroup X may be all a manager needs to know to uniquely identify this respondent as “Ms. Miller”. Being identified as the source of certain survey answers should be less of a problem, in general, if the respondent answered all substantive items positively. However, if a respondent harshly criticizes his coworkers or supervisor, for example, then becoming exposed as the data source can do a lot of damage to the respondent’s well-being or career, as those who are criticized may retaliate upon the respondent. Hence, one may hypothesize that demographic item non-response is more likely for employees with negative attitudes towards their job or towards the company. Similarly, employees who are concerned about job security may want to avoid becoming identifiable if they are afraid that management will use the survey to identify “negative” persons who should be fired first when downsizing or restructuring the company. On the other hand, such persons may still want to tell management “anonymously” how they feel.

If we follow Dillman’s (2000) rational choice theorizing to explain survey participation, the employee who is asked to participate in an employee survey weighs anticipated benefits against subjective costs of participating. If the former outweigh the latter, the individual will participate. The same logic can be used for the decision to respond or not respond to demographic items. The benefit that the employees may see when filling out the demographics is that the various organizational subgroups and, most of all, the particular workgroup they belong to will get specific feedback so that focused actions become possible. The subjective costs of answering the demographic items should essentially correspond to the risk of being identified as the source of particular ratings. This risk should be small, in general, if the ratings are positive, and large if they are not. After all, such ratings can harm a manager’s bonuses or damage his or her career, so that the respondents may be rightfully concerned that being identified as the source of such ratings will lead to negative consequences. We therefore hypothesize that demographic item non-response is either random (if caused by technical reasons such as overlooking these items, terminating the questionnaire due to fatigue, etc.) or motivated by negative attitudes and opinions that the respondents do not want to reveal in a way that is potentially public.

One may also speculate about the particular issues where identification of the source is most risky. It seems that negative attitudes related to the organization’s leadership and, more specifically, beliefs that doubt the managers’ willingness to utilize the employees’ voices constructively should be sensitive issues in this regard (Spitzmueller *et al.*, 2006). Other issues are perceived procedural justice, trust in management, perceived fairness and integrity of the company, etc., i.e. all the variables that form the fabric on which organizational citizenship behavior (OCB) thrives (Penner *et al.*, 1997; Mayer and Gavin, 2005; Moorman, 1991; Staufenbiel *et al.*, 2006). Expressed conversely, survey participation, including filling out the entire questionnaire with all its content and demographic items, can be seen as a form of OCB, a discretionary contribution to the organization’s well-being and development that requires a climate of trust (Spitzmueller, 2006).

These conjectures were supported by Borg (1991) who reports for a set of different employee surveys that persons who did not fill out one or more of the demographic items (e.g., organizational unit, gender, or tenure) scaled more negatively on virtually all attitudes towards their job and the company. In a similar study, Koslowsky and Zeev (1990) asked employees to provide, voluntarily, their full name and address at the end of an organizational survey. Those who did were found to have a more positive affective commitment than those who did not. These findings contradict Spitzmueller (2006, p. 153) who hypothesizes – for unit non-respondents – that “assurances of anonymity may impact the response behavior of passive non-respondents, but not that of active non-respondents whose decision not to respond is based on their more negative attitudes towards their organization”. Hence, this would indicate that unit non-response and demographic item non-response are motivated differently, because increasing the participation of passive non-respondents should have no systematic effect on the survey results. Yet, except for the studies by Borg (1991) and Koslowsky and Zeev (1990), we do not know of any study on demographic item non-respondents in employee surveys. These two studies, however, do not throw much light on how to predict demographic item non-response. Commitment, as studied by Koslowsky and Zeev (1990), may be one variable, but other variables such as job satisfaction, attitudes towards management and the company in general, and towards management in its leadership role in particular could also be important.

### Hypotheses

Having employees who are affectively committed to their organization is usually considered highly desirable by industrial as well as non-profit organizations. High commitment is known to be negatively related to various forms of withdrawal behavior such as lateness, absenteeism, tardiness, and turnover intentions (Johns, 2001). It is also believed to be positively related to both in-role performance as well as to contextual or OCB performance (Harrison *et al.*, 2006). Thus, good employees are expected to be committed to the organization; and poor commitment to the organization can be seen as an indicator that this person is not likely to contribute much to the organization's goals. Employees with low affective commitment should, therefore, be less likely to reveal demographic information (Koslowsky and Zeev, 1990). A second reason for predicting higher demographic item non-response for persons with lower commitment is that one may conceive of survey completion itself as evidence of OCB (Rogelberg *et al.*, 2000; Spitzmueller, 2006), i.e. as discretionary contributions that help the development of the company. This notion builds on Organ and Ryan (1995) who found that organizational commitment is positively correlated with OCB. Persons with high affective commitment may consider their OCB contributions as “prepayment” for eventual good treatment by the employer (Harrison *et al.*, 2006), while persons with low affective commitment may see no reasons for such behavior because they do not expect any rewards.

For job satisfaction, we predict a similar relationship: Employees who are highly satisfied should have no reason to withhold identifying information, because reporting positive attitudes and opinions is no risk in general. Moreover, satisfied employees should also be more likely to exhibit OCB in contributing to the organizational goals by providing accurate and complete information in the survey, because organizational commitment and job satisfaction are typically positively correlated (Meyer *et al.*, 2002).

Moreover, both concepts also have conceptual commonalities: The target of the former is the entire organization, the target of the latter is one's position or work role embedded in the realities of the given organization.

Finally, as we suspect that demographic item non-respondents should be skeptical that their data are utilized in a constructive way, we hypothesize that this skepticism should be reflected in critical assessments of the company's integrity, in particular in negative attitudes towards management in its leadership role. Trust in management should be lower, since trust is usually defined as "the willingness to be vulnerable to another party when the other party cannot be controlled or monitored" (Mayer and Gavin, 2005, p. 874), and withholding demographic information reduces a respondent's vulnerability.

We will investigate the explanatory power of these constructs when used simultaneously to predict demographic item non-response. Several scenarios are possible but we do not have a clear hypothesis which of them might apply in this situation: All constructs could contribute independently to demographic item non-response. Either one of them could also account for the variance explained by the other in bivariate regressions, or there might be interaction effects. The literature provides no indication regarding which of these alternatives is more likely to occur.

### Methodology

We use data from an employee survey conducted by the first author in 1989 in a German company that developed and produced medical instruments (called ABC in the following). A total of 870 employees were invited to participate in a census employee survey and 773 or 88 percent of them returned a filled-out questionnaire (gross response rate). Data collection was conducted by the polling station method (Borg, 2003), where the employees were invited to fill out their questionnaire during specially assigned time slots in the company's cafeteria. For that purpose, the cafeteria was set up to mimic a political election with polling booths, ballot boxes, and so on. When entering the polling station, each participant first turned to a board of polling officers where he or she received a packet containing the questionnaire, an instruction sheet, and a blank envelope for returning the questionnaire. The name of the respondent was then cancelled on a name list to prevent that employees could participate more than once and to monitor participation rates. The respondents later returned the questionnaire to one of the ballot boxes positioned at the exits. The ballot boxes were supervised by survey consultants of the external survey vendor. At the end of each work day, these boxes were collected by the external survey vendor and removed from the company site. There were three such polling days so that the normal work activities could be maintained.

The questionnaire consisted of an extended version of the German Job Satisfaction Survey (Borg, 2003; Liu *et al.*, 2004), augmented by a set of company-specific attitude and opinion items that addressed the particular company strategy, various hot topics, training and development issues, etc. There were 146 content items altogether in the questionnaire. All items were set up in a Likert format with response scales ranging from 1 ("strongly disagree") to 7 ("strongly agree"), with "undecided" as the middle category.

To measure job satisfaction (JS), we used a single item that asked "All in all, I am satisfied with my job". This item appeared at the end of the questionnaire. We also

computed a scale score by averaging the respondent's scores on the subscales (as described in Liu *et al.*, 2004) working conditions, work itself, advancement, pay and benefits, and supervisor ( $\alpha = 0.84$ ). Finally, we derived an overall job satisfaction index by averaging the respondent's ratings on five marker variables for the job facets working conditions, work itself, advancement, pay and benefits, and supervisor ( $\alpha = 0.78$ ). Each of these overall facet satisfaction items was positioned as the last item in a separate block of items that addressed a particular topic such as pay, supervision, or working conditions. The general format of these items was "All in all, I am very satisfied with [X]", where X reads, for example "my pay and the benefits I get" or "my direct supervisor". These items thus appeared in a questionnaire with a structure typical for employee surveys (Borg, 2003; Domsch and Ladwig, 2000; Liu *et al.*, 2004), i.e. a layout where topics are addressed not by randomly sorted items but by items grouped into blocks of similar content in order to enable the respondent to generate better judgments out of richer mental representations of the respective content fields (Tourangeau *et al.*, 2000). The subscale-aggregated JS scale and the marker-item JS scale correlate with .98. They both correlate with the single overall JS item with .64, which corresponds to values reported by Wanous *et al.* (1997) and Nagy (2002).

An affective commitment index was derived from two items: "I am proud to work for ABC" and "If I had to decide again, I would join ABC a second time".

The respondent's attitude towards leadership was measured with 11 items. They asked the employees to rate management's perceived competency (clear goals and directions, good planning and strategy, well-planned change, overall competency, good information/communication), trust in management (trust executive board, managers listen, respond to employee suggestions), and overall satisfaction with management and with the company (see Table I, items marked with an asterisk). These items were one-dimensional, with  $\alpha = 0.89$ .

The demographic variables appeared on two pages at the end of the questionnaire in a separate section. They were set up so that the respondent answered them by checking a box on a category scale. There were two types of demographic variables: Personal demographics and organizational demographics. Personal demographics comprised three individual characteristics of the respondent, namely:

- (1) job tenure (0-5 years, 6-10 years, 11-20 years, more than 20 years);
- (2) gender; and
- (3) position (apprentice, tariff worker, technician, administrator, team manager, middle manager, top manager).

In addition, there were four demographic items that characterized to which group of the organization the respondent belonged:

- (1) location (eight cities);
- (2) function (sales, support, administration);
- (3) building in headquarter location (with two categories); and
- (4) department (with 27 categories such as HR, sales admin, sales field, support or various production centers).

The organizational structure of the company was such that it would not make sense to fill out all these demographic variables at the same time. Rather, the respondents



	Mean					SD	
	Resp.	NR	<i>p</i>	<i>t</i>	df	Resp	NR
<i>Working conditions</i>							
Have tools I need	2.99	3.14	0.29	-1.05	339.2	1.71	1.80
PC's frustrating	4.11	4.53	0.00	-3.03	384.0	1.76	1.65
IT poor, prevents doing a good job	4.78	5.00	0.08	-1.78	385.4	1.53	1.45
Overall satisfied with working conditions	5.45	5.22	0.07	1.83	304.4	1.36	1.57
<i>Work itself</i>							
My work goals are clear	5.34	5.37	0.80	-0.25	312.5	1.35	1.49
My work is appreciated here	3.47	3.63	0.29	-1.06	299.3	1.75	1.85
Satisfied with influence on decisions	5.29	5.05	0.03	2.12	322.6	1.28	1.39
Concerned my skills become obsolete	4.35	3.99	0.02	2.43	310.3	1.60	1.79
Will need many new skills in future	5.13	5.11	0.86	0.18	292.2	1.36	1.51
Overall satisfied with tasks, work itself	3.51	3.90	0.01	-2.70	313.3	1.68	1.75
<i>Advancement</i>							
Advancement depends on performance	3.78	3.48	0.03	2.12	292.0	1.48	1.67
ABC promotes employees before hiring	4.04	3.71	0.02	2.32	264.5	1.42	1.68
Overall satisfied with training program	3.52	3.58	0.67	-0.42	307.0	1.48	1.47
Overall satisfied with chances for advancement	3.66	3.41	0.08	1.75	257.2	1.41	1.61
<i>Pay and benefits</i>							
Pay raise depends on performance	4.12	3.72	0.01	2.63	31.1	1.65	1.84
Pay fair compared to others	4.21	3.93	0.05	1.99	287.9	1.50	1.74
Overall satisfied with benefits	4.61	4.44	0.19	1.32	305.7	1.42	1.63
Overall satisfied with pay	4.11	3.90	0.13	1.54	315.2	1.53	1.75
<i>Coworkers</i>							
If problem, everyone points finger on others	2.88	3.24	0.01	-2.68	305.2	1.49	1.62
Feel accepted by coworkers	5.74	5.63	0.22	1.24	318.5	1.00	1.06
If needed get support from coworkers	5.56	5.35	0.03	2.13	316.7	1.10	1.28
Nice atmosphere in workgroup	5.12	4.94	0.13	1.50	329.9	1.35	1.48
Group works as team	5.15	4.93	0.06	1.88	314.5	1.30	1.46
Overall satisfied with coworkers	4.81	4.74	0.60	0.52	302.9	1.44	1.62
<i>Supervisor</i>							
Supervisor wants that things are done his way	3.78	4.31	0.00	-3.70	325.7	1.63	1.75
Supervisor is fair in performance evaluations	3.46	3.66	0.12	-1.57	285.3	1.35	1.53
Supervisor recognizes good performance	4.35	4.25	0.48	.71	294.0	1.48	1.64
Supervisor stands up for me even if uncomfortable	4.53	4.13	0.01	2.79	283.5	1.49	1.78
Supervisor is interested in my ideas, suggestions	3.15	3.45	0.03	-2.19	283.8	1.48	1.65
I trust my supervisor	4.80	4.40	0.00	2.96	281.5	1.41	1.63
Supervisor is competent	4.49	4.14	0.01	2.48	295.2	1.54	1.70
Overall satisfied with supervisor	4.53	4.13	0.01	2.79	283.5	1.49	1.78
<i>Management</i>							
Manager clear on goals, directions *	4.05	3.60	.01	2.80	254.9	1.63	1.90
Manager takes into account what employees think *	3.27	2.86	0.00	2.90	263.9	1.48	1.61
Satisfied with managers' competency *	3.90	3.55	0.02	2.30	233.7	1.43	1.77
Manager responds to employees' suggestions *	4.05	3.39	0.00	4.62	24.9	1.39	1.62
Change is always well planned *	3.17	2.87	0.04	2.09	24.2	1.44	1.62
I can always talk to management	4.54	3.87	0.00	4.40	247.6	1.52	1.76
Managers interested in advcmnt of employees *	4.12	3.62	0.00	3.52	231.8	1.35	1.60
Feel free to tell m. what I really think	4.37	3.73	0.00	3.67	239.2	1.62	2.06
I see managers only if something went wrong	3.81	4.23	0.01	-2.82	251.1	1.55	1.67
Overall satisfied with management *	3.81	4.23	0.01	-2.82	251.1	1.55	1.67

(continued)

**Table I.**  
Item statistics for  
demographic item  
responders (Resp.) and  
demographic item  
non-respondents (NR);  
with *t*-test values (not  
assuming equal variance)

	Mean					SD		Demographic item non-respondents
	Resp.	NR	<i>p</i>	<i>t</i>	df	Resp	NR	
<i>Information and communication</i>								
Satisfied with communication among coworkers	4.89	4.83	0.59	.53	29.5	1.27	1.43	<b>153</b>
ABC keeps us well informed*	3.78	3.54	0.09	1.70	292.5	1.44	1.66	
Get info on how well company is doing	4.89	4.83	0.59	.53	29.5	1.27	1.43	
Get info on customer satisfaction	3.97	4.19	0.06	-1.88	297.4	1.27	1.36	
ABC interested in employee opinions	3.69	3.65	0.78	0.28	221.6	1.16	1.21	
<i>Company</i>								
Proud to work for ABC	4.66	4.36	0.02	2.32	28.9	1.30	1.61	<b>153</b>
Would join ABC a second time	4.34	4.02	0.03	2.17	284.9	1.55	1.78	
Am often concerned about ABC's future	3.63	3.24	0.01	2.74	289.2	1.55	1.75	
Am seriously considering leaving	2.65	2.89	0.07	-1.80	276.5	1.48	1.61	
Have full trust in Executive Board*	3.63	3.24	0.01	2.74	289.2	1.55	1.75	
Many only work here because of no jobs	3.63	3.01	0.00	4.07	287.4	1.65	1.80	
Employees far too rarely asked for opinion	4.15	4.60	0.00	-3.40	322.9	1.58	1.60	
Satisfied with planning, strategy at ABC*	4.26	4.69	0.00	-3.22	294.5	1.49	1.54	
ABC has good chances in future	5.56	5.85	0.01	-2.53	334.4	1.38	1.40	
ABC shows integrity <i>vis-à-vis</i> employees	3.92	3.30	0.00	3.97	257.7	1.55	1.84	
ABC known as a good employer	4.17	3.90	0.06	1.86	245.9	1.43	1.62	
Some employees have inadequate privileges	4.55	4.95	0.00	-2.95	274.8	1.48	1.52	
Blue-collar employees treated unfairly	3.50	3.88	0.00	-2.84	259.1	1.39	1.55	
At ABC, risk is rewarded	5.00	4.80	0.08	1.76	282.8	1.23	1.40	
Even smallest things decided from above	3.80	4.25	0.00	-3.01	256.0	1.57	1.71	
Overall satisfied with ABC as company*	4.34	4.13	0.12	1.58	26.2	1.26	1.54	
<i>Overall job satisfaction</i>								
Overall satisfied with my job	4.67	4.36	0.02	2.41	278.0	1.30	1.58	
<i>Last employee survey</i>								
Managers responded positively to last survey	4.47	4.04	0.00	3.22	257.5	1.39	1.53	
Last survey made people talk more freely	4.31	3.83	0.00	3.61	244.0	1.26	1.59	
Last survey improved vertical communication	4.55	4.14	0.00	3.01	244.4	1.32	1.63	

**Note:** Items marked with \* form the trust-in-leadership scale

**Table I.**

should either fill out (4) and then add (5), or fill out (6) and then (7). Variables (5) and (7) make sense only given (4) or (6), respectively. If a respondent would fill out (4) and (7), for example, then this would be an error, because such a demographic profile does not exist in this company. No respondent, however, made such an error. In total, 549 (74 percent) respondents filled out all demographic items. The rest of the respondents (198 or 26 percent) skipped one or more demographic items needed to generate formally correct demographic profiles. These persons are called demographic non-respondents in the following.

## Results

### *Predicting demographic item non-response*

Table II exhibits the intercorrelations of the scales used in the model. The intercorrelations are all positive, as usual in this context, but not so high that the scales should be considered redundant.

To study the role of commitment, attitude towards leadership, and job satisfaction in predicting an employee's non-response to demographic items, we first run a binary



logistic regression with demographic non-response (yes, no) as the dependent variable, and the demographic item respondents as the baseline category (Table III).

The table shows that only attitude towards leadership becomes significant. Commitment does not, although the sign of its weight is in the predicted direction. Job satisfaction, on the other hand, leads to an increase in the likelihood of demographic non-response in this model, which is not as predicted (although the effect is not significant). Yet, if we admit an interaction term for commitment and job satisfaction, the model fits very well in the hypothesized sense, as the bottom part of Table III shows. All main effects are significant, i.e. if a person's attitude is more negative on any of the three variables, it increases the likelihood of not fully answering the demographic items.

The effect of the 'commitment by job satisfaction' interaction is most easily understood from Figure 1. It shows the effect of commitment on the probabilities of demographic non-response for different levels of job satisfaction.

One notes that the effect of job satisfaction on demographic non-response is moderated by the person's affective commitment: Job satisfaction has the greatest impact on demographic non-response if commitment is not extreme. Persons with extremely high commitment tend to fill out the demographic items, whether or not they are satisfied with their jobs. Similarly, for persons with an extremely low commitment, low job satisfaction makes it more likely that they skip the demographic items, but the effect on non-response is not as large as it is for persons with intermediate levels of commitment.

*Measurement equivalence of the scales*

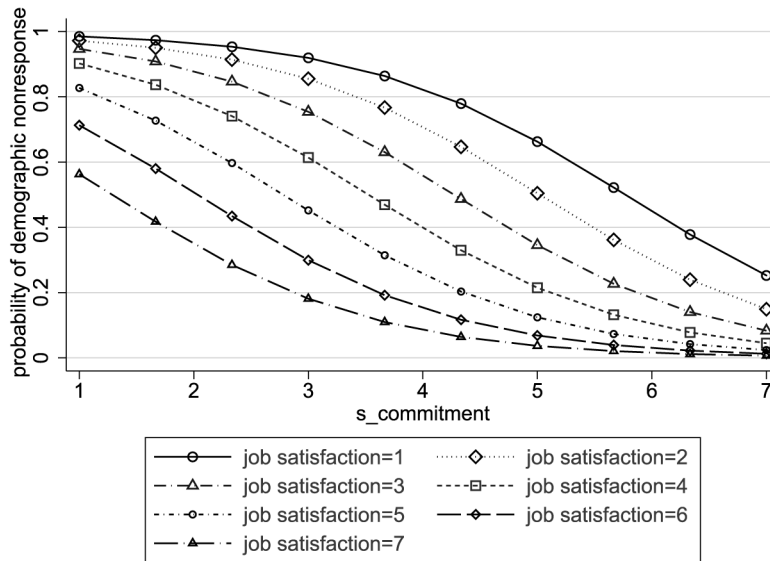
Comparing the mean scale scores of two groups makes sense only if the scales are comparable for these groups. To assess measurement equivalence, a hierarchy of tests is possible (Vandenberg and Lance, 2000). A relatively strict test is to check to what extent the covariances of the items that make up the scales commitment, job satisfaction, and attitude towards leadership can be explained by one common factor model with one set of loadings and factor intercorrelations. For the job satisfaction scales and its subscales,

**Table II.**  
Intercorrelations among  
scales

	Attitude towards leadership	Commitment	Job satisfaction
Attitude towards leadership	1.00		
Commitment	0.58	1.00	
Job satisfaction	0.59	0.55	1.00

**Table III.**  
Binary logistic regression  
of demographic item  
non-response (yes, no) on  
attitude towards  
leadership, affective  
organizational  
commitment, and job  
satisfaction

	Odds ratio	s.e.	p	95 percent conf. int.	
Attitude towards leadership	0.078	0.010	0.001**	0.047	0.084
Commitment	0.090	0.008	0.016	0.056	0.99
Job satisfaction	1.17	0.12	0.20	0.87	1.50
$\chi^2 = 15.41$ , $df = 3$ , $p = 0.001$					
Attitude towards leadership	0.76	0.10	0.00***	0.63	0.92
Commitment	0.42	0.26	0.00***	0.25	0.69
Job satisfaction	0.56	0.27	0.03***	0.33	0.95
Job satisfaction by commitment	1.20	0.06	0.00**	1.07	1.34
$\chi^2 = 25.70$ , $df = 4$ , $p = 0.00$					



**Figure 1.**  
Probabilities of  
demographic item  
non-response for persons  
with different levels of  
commitment and job  
satisfaction

transportability over countries and cultures has already been demonstrated by Liu *et al.* (2004). We here extend these tests to respondents and non-respondents, and also consider the commitment scale and the attitude-towards-leadership scale at the same time in one common model. For this two-group CFA model with constrained measurement weights, we get the following fit indices: RMSEA = 0.068 ( $\chi^2 = 1015$ ,  $df = 264$ ,  $p = 0.000$ ), TLI = 0.868, and CFI = 0.880. According to Steiger (1989, p. 81), the originator of the root-mean-square error of approximation statistic, fit values below 0.05 are considered very good, those below 0.10 good, while Browne and Cudeck (1993, p. 144) classify fit values of up to 0.05 as good, those up to 0.08 as acceptable, and those above 0.10 as unacceptable. Bentler's (1990) comparative fit index (CFI) and the Tucker-Lewis index (TLI), in contrast, indicate borderline acceptability. Hu and Bentler (1999) recommend to accept models with a CFI greater than 0.90, while the TLI is often interpreted similarly, although lower bounds are really not established. Here, we follow Harrison *et al.* (2006) who accept their final model on the basis of a similar (but slightly poorer) profile of fit indices

One can also analyze the two groups separately and then compare the results. Exploratory factor analyses with three factors each, and subsequently eliminating arbitrary orientations via Procrustean rotations (Borg and Groenen, 2005), yields to a congruence coefficient of 0.9867. According to Korth and Tucker (1975), such a degree of configurational similarity cannot be expected by chance. Hence, we can conclude that the scales (and the structures of the scales) for respondents and non-respondents are sufficiently similar in a metric sense to warrant a comparison of scale scores.

#### *Mean item ratings of demographic respondents and non-respondents*

The differences of the ratings of demographic item respondents and non-respondents on many content items are shown in detail in Table I. We note that non-respondents are less positive on almost any item. Particularly consistent and strong differences are

found for attitudes towards management and towards the company. Related to these issues is also the non-respondents' relatively negative assessment of the effects of the last employee survey, where they feel that management did not utilize these data constructively. Supervisors and co-workers also receive relatively negative ratings from demographic item non-respondents on most issues. An exception to the general finding that demographic item non-respondents are relatively negative is their assessment of the tasks and the work they have, which is comparatively positive.

### Discussion

The findings above indicate that non-response to demographic items in an employee survey is more likely to occur for employees with low commitment, low job satisfaction, and, most importantly, with a negative attitude towards the company's leadership. Demographic non-respondents feel more strongly than respondents that managers are not really interested in their opinions, that they do what they intend to do anyway, and that one should stay away from making suggestions for improvement. This attitude is buttressed by the negative recollection that demographic item non-respondents have about the effects of the last survey, i.e. that it was not really embraced by managers and not used to improve the working conditions and the working context.

It is also interesting to note that demographic non-respondents are significantly more concerned that their skills will become obsolete, even though they are more confident than respondents that the company's future looks good. Given that they also more concerned about how managers utilize negative feedback and taking into account that they have relatively low trust in the company's leaders, this would be an issue where anonymity is really important. Employees with skills that may soon be obsolete and who are also complaining a lot would be natural candidates when it comes to downsizing or to restructuring the company's workforce.

There were few issues where demographic item non-respondents were significantly more positive than demographic item respondents, namely regarding satisfaction with work itself and the future of the company. We interpret these findings as artifacts that show that non-respondents may be more frequent among professionals who usually are more positive about the work they have than blue-collar workers (Borg, 2003; Spector, 1997). Such persons should also be more aware of the possibilities or of the risks of being identified as the source of particular survey responses.

Commitment was found to have a main effect on the likelihood to answer the demographic items. This corroborates previous findings by Koslowsky and Zeev (1990), where respondents who provided their full name and address in an organizational survey also exhibited relatively high affective commitment. What we find here, in addition, is that commitment moderates the effect of job satisfaction on demographic item non-response. In particular, employees with very high commitment tend to fill out the demographics even if they are not satisfied with their jobs. One may conclude from this that, with highly committed employees, even surveys that are not anonymous should be feasible. Such surveys would, of course, be tremendously more informative than anonymous surveys, because one could then link the particular survey data to any data in the personnel information system, to customer satisfaction, or to productivity variables.

Commitment is known to be a driver of organizational citizenship behavior, a contextual type of performance behavior that contributes to the wider environment of one's job (Harrison *et al.*, 2006). Since an employee survey is often strongly promoted as

an instrument that serves to enhance the general well-being of the organization and its subunits, attitudes towards the organization should be more important determinants of survey behavior than attitudes towards one's job. Hence, organizations where the employees are generally skeptical that they will be properly rewarded for their efforts cannot hope for such discretionary input. Expressed differently, organizations where employees are concerned about negative consequences of critical input are more likely to get no input or "censored" input.

The effects that we find here are quite strong. On some items, the difference between demographic item respondents and non-respondents is as large as 0.67 units on the seven-point Likert scale. This is remarkable, because one cannot expect that all demographic non-response is intentional. Some of these persons may simply overlook the demographic items, in particular because they appear at the end of the survey. In particular, persons who never make it to the end of the questionnaire would automatically skip the demographic items. That is why many employee surveys these days place the demographic items at the beginning of the survey, even though this is often not considered best practice in surveys in general (McColl *et al.*, 2001; Moser and Kalton, 1971). However, public opinion surveys typically use a large number of demographic items, while employee surveys tend to ask very few – indeed, "as few as possible" (Roll, 2006). This issue could be investigated in more detail by studying the differences of those respondents who terminated the survey before ever getting to the demographic items from those who got there but then decided to skip some or all answers. Unfortunately, this would require larger data sets, because item non-response on content items of well-designed employee surveys is typically quite low in frequency (Borg and Treder, 2003).

Another research question that should be pursued more closely is measurement equivalence of demographic item respondents and non-respondents. For the given sample, we found an acceptable fit for a common CFA model. Even if one runs exploratory factor analyses for both respondents and non-respondents, one obtains similar configurations. However, the fit is not perfect and some differences seem detectable. To pursue these differences further in the given data, however, poses the risk of overinterpreting the data of just one sample, and so new samples would be desirable to study which phenomena of this kind are reliable and invariant.

More research is also needed on the differential functioning of the demographic variables. Answering a demographic item that asks about the respondent's gender, for example, should not be risky for a male employee in a working group with many men, for example, while this item uniquely identifies the only woman in this working group. Similarly, certain combinations of demographic pieces of information can unambiguously characterize one particular person. In the above, we paid no attention to the sensitivity of particular omissions or even combinations of omissions – and still found strong differences between persons who skipped one or more demographic items and those who did not. These differences become even larger if we restrict the latter to persons who skip all the personal demographics (tenure, gender, position), or all of the organizational demographics (location, function, building, department), or all demographic items.

To avoid passive demographic non-responses in today's web-based employee surveys, demographic information is often filled out automatically by the personnel information system, so that demographic item non-response is not possible. A person

who is concerned about anonymity can thus only opt not to participate at all. However, this does not avoid the problem of getting results that are biased towards the positive, because once it comes to interpreting the survey data for the individual manager, demographic item non-response and unit non-response is equivalent: Neither case contributes to the statistics derived from the survey. Indeed, unit non-response is even worse, because such persons do not even contribute to global statistics. Also, if employees are pressured or tricked into participating in a survey with an automatically filled-out demographic profile, they might simply report overly positive attitudes to defend themselves against the risk of identification.

From a practitioner's point-of-view, the results in this paper indicate that the typical survey report that focuses on a specific workgroup or a smaller organizational unit is likely to be biased to some extent. Its results are probably too positive, in particular when it comes to items that measure the employees' attitudes towards managers and company leadership. The recipe to prevent such a bias is to foster a climate where every employee feels confident that the data are protected and that they will be used constructively, so that filling out demographic items is not a risk for the individual respondent but rather a chance to promote useful actions.

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